10 CFR 50, APPENDIX J
CONTAINMENT INTEGRATED LEAK RATE TESTING

A. PURPOSE

To identify all the acceptable containment integrated leak rate test (CILRT) methods that have been approved by NRR to date.

B. BACKGROUND

Regional inspection of the performance of CILRTs indicated that there are differing opinions as to which of the CILRT methods used by licensees are acceptable to NRR.

Licensees are presently using the following CILRT computation methods: the "total time" method specified in ANSI N45.4-1972; a shortened-time-duration method provided by Bechtel Topical Report BN-TOP-1, Rev. 1; and the "mass point" method described in ANSI/ANS-56.8-1981 which was issued to replace ANSI N45.4-1972.

Most licensees are using the mass-point method to calculate containment integrated leakage rates because it provides more accurate results than the total-time method. Additionally, some licensees concurrently use the shortened-time-duration method of BN-TOP-1 to determine the integrated leakage rate. This procedure uses the total-time method as a basis and includes additional acceptance criteria that improve the accuracy of the test.

To facilitate inspections of CILRTs, IE requested NRR to provide information as to which CILRT methods it considers acceptable (February 26, 1986 memorandum). NRR responded to IE's request in an April 1, 1986 memorandum. In that response, NRR stated ANSI/ANS-56.8-1981 was issued with the intent to replace N45.4-1972; however, the staff had not yet approved that revision. In the interim, NRR stated that the mass-point method could be used provided the CILRT duration was at least 24 hours. The Office of Nuclear Regulatory Research (RES) reviewed NRR's response and asked for a legal interpretation as to the acceptability of the mass-point method, since Appendix J requirements have not been revised to include the mass-point method. The legal interpretation received from OGC is discussed below.

C. DISCUSSION

The current requirements as stated in 10 CFR 50, Appendix J, Section III.A.3(a), are that all CILRTs shall be conducted in accordance with the provisions of ANSI N45.4-1972. This standard indicates that the two acceptable methods related to leak rate computation are the point-to-point and the total-time methods. These are the only acceptable methods officially approved by the staff.

The proposed new standard, ANSI/ANS-56.8-1981, has been considerably expanded and updated relative to the 1972 version. One of the changes is the introduction of the mass-point method associated with a minimum test duration of 8 hours. The staff has not approved ANSI/ANS-56.8-1981 for use, nor revised Appendix J to acknowledge the new standard. Therefore, the legal position stated by OGC is that the mass-point method may be used only where an exemption is granted to a utility pursuant to 10 CFR 50.12.

D. CONCLUSION

Draft Regulatory Guide MS 021-5, "Containment System Leakage Testing," is currently under internal review along with proposed revisions to Appendix J. The approach in this draft guide would eliminate the need for 24-hour minimum duration for the CILRT on the basis that better stabilization criteria would be developed for future tests. The scheduled dates for release of the draft guide and the Appendix J revision are uncertain. Therefore, for the foreseeable future, the NRC position is that the mass-point method may be used only where an exemption is granted to the utility pursuant to 10 CFR 50.12. Section III.A.3(a) specifically refers to N45.4-1972 which allows only two methods of test computation, viz, the point-to-point and total-time methods. The fact that a revised national standard, ANSI/ANS-56.8-1981, accepts the mass-point method is of no help in the face of this specific reference.

The proposed revision to Appendix J, which has been sent to the Commission, is less prescriptive and would allow the use of updated national standards such as ANSI/ANS-56.8. However, until such time as the revision of Appendix J is complete, N45.4-1972 is the applicable regulatory requirement.

E. REFERENCE

The guidance provided in this directive was extracted from an April 1, 1986 memorandum from Darrell G. Eisenhut, Deputy Director, NRR, for James G. Partlow, Director, Division of Inspection Programs, IE, subject: Containment Integrated Leak Rate Testing (CILRT) - Guidance On Testing Methods (DCS 68350/220), and from a July 16, 1986 memorandum from William J. Olmstead, Assistant General Counsel Rulemaking and Fuel Cycle, OGC, for, G. A. Arlotto, Director, Division of Engineering, RES, subject: Containment Integrated Leak Rate Testing (DCS 68486/055).

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